CLAIMS

What is claimed is:

1. A device comprising:

a first switch capable of receiving a transmit signal and a receive signal and

5   outputting a filter input, wherein said filter input is multiplied by a first filter tap to generate a

first product;

a delay unit for receiving said filter input and generating a delayed filter input,

wherein said delayed filter input is multiplied by a second filter tap to generate a second

product;

10   an adder for adding said first product with said second product and generating

a filter output;

a decision block receiving said filter output and generating a decision output;

and

a second switch capable of receiving said decision output, a training sequence

15   and said receive signal and outputting a second switch output;

wherein an error signal is generated using said filter output and said second

switch output.

2. The device of claim 1, wherein said filter input is said receive signal and said

second switch output is said training sequence or said decision output.

20   3. The device of claim 2, wherein said training sequence is a preamble.

4. The device of claim 1, wherein said filter input is said transmit signal and said

second switch output is said receive signal.

5. The device of claim 4, wherein said error signal is used to generate a peak

error and an error energy.

6.   The device of claim 5, wherein a packet collision is declared if said peak error is higher than a peak error threshold or error energy is higher than an error energy threshold.

7.   The device of claim 4, wherein a packet collision is declared if said peak error is higher than a peak error threshold and error energy is higher than an error energy threshold.

5   8.   The device of claim 1, wherein said transmit signal is delayed.

9.   A method of detecting a packet collision, said method comprising the steps of:

setting a first switch to output a transmit signal;

filtering said transmit signal to generate a filter output;

setting a second switch to out put a receive signal;

10   generating an error signal using said filter output and said receive signal;

measuring a peak error using said error signal;

comparing said peak error with a peak error threshold;

measuring an error energy using said error signal;

comparing said error energy with an error energy threshold; and

15   declaring said packet collision if said peak error is higher than said peak error threshold or if said error energy is higher than said error energy threshold.

10.   The method of claim 9, wherein said declaring step declares said packet collision if said peak error is higher than said peak error threshold and if said error energy is higher than said error energy threshold.

20   11.   The method of claim 9 further comprising the step of delaying said transmit signal.

12.   The method of claim 9, wherein said first switch is capable of receiving said receive signal and said transmit signal.

13. The method of claim 9, wherein said second switch is capable of receiving a training sequence, a decision output and said receive signal.

14. A method of equalizing a channel, said method comprising the steps of:

setting a first switch to output a receive signal, wherein said first switch

5 receives said receive signal;

filtering said receive signal to generate a filter output;

generating a decision output using said filter output;

setting a second switch to out put said decision output or a training sequence, wherein said second switch receives said decision output and said training sequence; and

10 generating an error signal using said filter output and one of said decision output or said training sequence;

wherein said error signal is used to equalize said channel.

15. The method of claim 14, wherein said first switch is capable of receiving said receive signal and said transmit signal.

15 16. The method of claim 14, wherein said second switch is capable of receiving said training sequence, said decision output and said receive signal.

17. The method of claim 14 further comprising the step of generating said decision output using said filter output.